REMARKS

Claims 1, 3-6, 8-18, 21-32, 34-41, 43-50, 52-56 and 58-64 are pending and at issue in the application with claims 1, 17, 29, 38 and 49 being independent claims. Claims 1, 8, 9, 12, 13, 17, 18, 29, 38 and 49 have been amended. Claim 57 has been cancelled. Claims 58-64 have been added. Reconsideration and withdrawal of the rejections in view of the remarks below is respectfully requested.

Claims 1, 3-6, 8-18, 21-32, 34-41, 43-50 and 52-57 are rejected as unpatentable over Liebowitz et al. (U.S. Patent No. 5,812,545) in view of Toporek et al. (U.S. Patent No. 6,460,085). The applicants respectfully traverse the rejections in view of the amendments above and the remarks below.

Each of independent claims 1, 17, 29, 38 and 49 recites a method or system of transmitting data through a communication link having a bandwidth, the method or system including, among other things, associating each one of a plurality of worker objects (or processes) where each of the plurality of worker objects (or processes) is capable of forming and delivering a message to an underlying layer of each of a plurality of communication connections of the communication link. Each of the claims have been amended to clarify that each worker object (or process) has a parameter value configured to establish ***different, respective predetermined portions of the bandwidth***. As such, each communication connection uses no more than the ***respective predetermined portion of the bandwidth*** allocated to that communication connection.

These features enable, for example, a communication link 16 having a particular bandwidth to be portioned so that multiple connections 402-408 may result from a single communication link. Moreover, the claim features provide for establishing ***different*** predetermined portions of the bandwidths for each of the multiple connections. (See e.g., the applicant's specification, Figs. 5 and 6). In the example provided in the applicants' disclosure, an effective priority level is provided by uniquely configuring each communication connection based on a parameter of a worker object which results in a comprehensive orchestration over the manner in which the plurality of communication connections send data into the communication link. (See e.g., the applicant's specification, page 6, line 24 to page 7, line 6). In a particular embodiment, the connection identifier is identified in a protocol header of a data packet created by a transport layer worker object. (See e.g., the applicant's specification, page 18, lines 14-19). This connection identifier is

associated with a worker object to thereby multiplex data at a higher layer than conventional systems. The worker object sends data, based on a parameter (e.g., a message size) of the worker object, into the communication link so that the data sent by each worker object uses no more than the respective predetermined portion of the bandwidth. For example, these messages are sent one at a time from the worker object 104, via the respective connection 402 of the link 16, to the underlying layer.

In a specific example, Fig. 6 of the applicants' specification illustrates an example of connection 1 which uses a first parameter value of a worker object, such as a message size of 8192 bytes, to form a first bandwidth utilization of 20.8 kb/s, which is no more than a first predetermined portion of the total 64 kb/s bandwidth utilization. Connection 2 uses a second parameter value of a worker object, such as a message size of 3072 bytes, to form a second bandwidth utilization of 4.8 kb/s, which is no more than a second predetermined portion of the total 64 kb/s bandwidth utilization. As such, each communication connection of the communication link is uniquely configured based on a particular parameter value of a respective worker object which results in a comprehensive orchestration over the manner in which the plurality of communication connections send data into the communication link.

Simply put, the combination of Liebowitz et al. and Toporek et al. does not disclose or suggest each of the features of claims 1, 17, 29, 38 and 49. In particular, neither Liebowitz et al. nor Toporek et al. disclose worker objects (or processes) each having a parameter value configured to establish ***different, respective predetermined portions of the bandwidth***, such that each communication connection uses no more than the ***respective predetermined portion of the bandwidth*** allocated to that communication connection.

The applicants note that the present application has now undergone several official actions, with the vast majority of the actions having been successfully overcome as distinguishing the claims over the cited references. Indeed, at one time it was found that the claims were patentable over all the references of record, including Liebowitz et al. and Toporek et al. (see 6/6/2006 action). However, as with many of the previous actions, the present action issues new rejections based new citations and/or new interpretations of previously-cited references. For example, the action of July 12, 2007 acknowledged that Liebowitz et al. does not explicitly disclose establishing a worker object for each one of the plurality of communication connections, distributing data amongst worker objects and forming messages using worker objects (see e.g., 7/12/07 action, page 5). The action of

January 24, 2008 then asserted that Liebowitz et al. discloses these features, with newly-referenced col. 4, lines 35-50 cited as disclosing establishing worker objects (or processes).

The present action now asserts that Liebowitz et al. discloses a worker object (and process) as a process or task to be performed by the terminal 12 (see e.g., action, page 19).[1] Given this most recent and newly-presented interpretation of Liebowitz et al., it is now incumbent upon the Office to demonstrate or identify particular processes or tasks performed by the terminal 12 of Liebowitz et al. that discloses all of the features of the recited worker objects (or processes). However, Liebowitz et al. does not. Specifically, Liebowitz et al. does not disclose various processes or tasks that, among other things, each have a parameter value configured to establish ***different, respective predetermined portions of the bandwidth***, such that each communication connection uses no more than the ***respective predetermined portion of the bandwidth*** allocated to that communication connection.

As previously discussed, Liebowitz et al. generally discloses a mesh satellite communications system between a terminal 12 and a satellite 14, where there exists a communication link as designated by the line between the terminal 12 and the satellite 14. (See e.g., Fig. 1). The terminal 12 includes a Fragment Assembler/Disassembler (FAD) 66 that receives data frames from different access devices 42 via a Frame Handler 64 for each access device 42. The FAD 66 creates an outgoing data queue 63 to store data frames from each access device 42, breaks each data frame into fragments, and stores as many fragments as possible in a burst buffer 68. The burst buffer 68 further stores bandwidth requests for transmission in the payload header 106. (See column 4, lines 30-67). The bandwidth requests do not request a specific amount of bandwidth, but instead reports stream requests, releases and queue sizes to another, different terminal 12 acting as a Manager Terminal, which determines how to allocate bandwidth among all the terminals 12. (See column 5, line 58 to column 6, line 11). Non-real time data priority level may also be determined by assigning committed information rates (CIRs). (See column 5, lines 1-37; column 16, lines

[1] It is noted, however, that this interpretation is inconsistent with the rejection itself, in which the action clearly and unequivocally reads: "'creates an outgoing data queue corresponding to each user access device for storing data received therefrom via a corresponding Frame Handler module' interpreted as establishing a worker object for each one of the communication connections" (see action, pages 2 and 3). Accordingly, in contrast to the interpretation provided on page 19, pages 2 and 3 provide a much different interpretation, with the latter interpretation already having been shown to be inadequate in the previous response by the applicants. Given this inconsistent interpretation inherent in the action, the applicants view this as an acknowledgement that Liebowitz et al. does not definitively disclose the recited worker objects or worker processes.

47-53). The CIR is essentially a guaranteed bandwidth for either a port 40 of a terminal 12 or for the terminal 12 itself. (See column 16, lines 47-53).

The action has interpreted the recited "communication link having a bandwidth using a plurality of communication connections" as the communication link between the terminal 12 and the satellite 14, where a programmable computing device (PCD) that "'prioritizes data into bursts using a fragmentation protocol, and organizes bursts in at least one of a plurality of slots constituting a time division multiple access (TDMA) frame,...and dynamic assignment of slots depends on the committed information rates (CIR)'" was interpreted as a bandwidth using a plurality of communication connections (see action, page 2). The action then interpreted the recited "allocating the predetermined portion of the bandwidth to each of the plurality of communication connections" as the data queue 74 or port 40 being assigned its own CIR (see action, page 3). Accordingly, it is clear that the action interprets the committed information rates (CIRs) of Liebowitz et al. as the recited "predetermined portion of the bandwidth of the communication link." As such, in order for Liebowitz et al. to disclose the features of the recited worker objects or worker processes, Liebowitz et al. must, among other things, disclose that CIRs are established via parameter values of worker objects or processes, just as the recited "respective predetermined portions of the bandwidth" are established from parameter values of worker objects or processes. However, Liebowitz et al. offers no such disclosure about the CIRs.

For example, at column 2, lines 47-62, Liebowitz et al. discloses that "dynamic assignment of slots depends on the committed information rates (CIR) of the terminals and the lengths of data queues in the terminals," and discloses how the CIRs may be utilized (see e.g., column 5, lines 1-48; column 10, line 54 to column 12, line 54) but does not disclose how the CIRs are established. Liebowitz et al. also discloses that CIRs are fixed and guaranteed bandwidths that may be assigned by the terminal 12, discloses how CIRs may be allocated, and discloses how CIRs may be paid for (see column 16, line 33 to column 17, line 67), but again does not disclose how the CIRs are established. Indeed, in many instances the CIR pertains to the terminal 12 as a whole, as opposed to different communication connections within the communication link between the terminal 12 and the satellite 14, and therefore do not correspond to the recited respective predetermined portions of the bandwidth, based on the interpretations of the action.

While Liebowitz et al. does disclose that a network management module (NMM) 78 may receive a command from a network Management Center (NMC) 13 to change the value of the CIR at the terminal 12, this command is not a parameter of a process or task of the terminal 12 (again, asserted by the action as the recited worker objects/processes), because the NMC 13 is not part of the terminal 12. (See Fig. 1). As such, even when Liebowitz et al. does offer some disclosure of how the value of a CIR is changed, it does not relate to a parameter value of a worker object or worker process, as interpreted by the action.

Accordingly, using the interpretations and grounds for rejection provided by the action, Liebowitz et al. does not disclose or suggest worker objects or worker processes that each have a parameter value configured to establish ***different, respective predetermined portions of the bandwidth***, such that each communication connection uses no more than the ***respective predetermined portion of the bandwidth*** allocated to that communication connection, as recited in the claims.

In addition, the action acknowledges that Liebowitz et al. does not disclose delivering the messages formed within each worker object (or process) to an underlying layer of the plurality of communication connections so that each communication connection uses no more than a predetermined portion of the bandwidth (see e.g., action, page 4), as recited in the claims.[2] For this reason, the action cites Toporek et al. However, Toporek et al. fails to make up for the deficiencies of Liebowitz et al., because Toporek et al. also does not disclose worker objects or worker processes that each have a parameter value configured to establish different, respective predetermined portions of the bandwidth, much less that messages are delivered so that each communication connection uses no more than the respective predetermined portion of the bandwidth allocated to that communication connection.

In particular, Toporek et al. does not disclose the recited worker objects (or processes), nor has Toporek et al. been cited for this purpose. As a consequence, while Toporek et al. discloses a method of controlling flow of information over a satellite communication link using a plurality of communication connections, Toporek et al. does not disclose worker objects or worker processes that each have a parameter value configured to establish different, respective predetermined portions of the bandwidth. As a consequence, Toporek et al. cannot disclose delivering messages so that each communication connection

[2] If the action acknowledges that Liebowitz et al. does not disclose this feature, it logically stands to reason that Liebowitz et al. also does not disclose the feature as amended (i.e., that each communication connection uses no more than the respective predetermined portion of the bandwidth).

uses no more than the respective predetermined portion of the bandwidth allocated to that communication connection. Instead, Toporek et al. discloses a rate control module which is used to determine whether information should be passed over to one of the plurality of communication connections or queued for later delivery. The rate control module disclosed in Toporek et al. determines the bandwidth to be used by any given communication connection based on the usage of all of the plurality of communication connection, thus, it does not provide that each of the plurality of communication connections uses no more than a respective predetermined portion of the bandwidth of the communication link. Accordingly, not only does Toporek et al. fail to make up for the deficiencies of Liebowitz et al, but Toporek et al. does not disclose the features of the claims for which it is cited.

It is clear that in order for a claim to be rendered *prima facie* unpatentable, "[all] words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). See MPEP 2143.03. As required by the Supreme Court in *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007) (*KSR*), the differences between the claimed invention and the prior art must still be ascertained, and both the invention and the prior art references must be considered as a whole. See also *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985), MPEP 706.02(j) and MPEP 2141. There is a further requirement that "rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). This requirement was upheld by the Supreme Court in *KSR* (see 82 USPQ2d at 1396). (See also MPEP 2142). In short, when formulating an obviousness rejection based upon a combination of prior art elements, it remains necessary to identify where each of the claim features are disclosed in the prior art and to identify a reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed. See *KSR* 82 USPQ2d at 1397. If all claims limitations are not disclosed and/or the resulting combination do not result in the invention in the manner claimed, then the rejection must be withdrawn. The combination of Liebowitz et al. and Toporek et al. fails to disclose the recited worker object (or process) and associated features in the manner claimed. As a consequence, the current rejections must be withdrawn.

Conclusion

Five (5) independent claims remain in the application as previously paid for, and forty-nine (49) total claims remain in the application as previously paid for. This response is being timely filed with a one-month extension of time, a Request for Continued Examination and fees. The applicants believe no additional fee is due. However, the Commissioner is hereby authorized to charge any deficiency in the amount enclosed or any additional fees which may be required under 37 CFR 1.16 or 1.17 to Deposit Account No. 13-2855. Should the examiner wish to discuss the foregoing, or any matter of form, in an effort to advance this application towards allowance, the examiner is urged to telephone the undersigned at the indicated number.

Respectfully submitted,

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By_____
Aaron M. Peters
Registration No.: 48,801
MARSHALL, GERSTEIN & BORUN LLP
233 S. Wacker Drive, Suite 6300
Sears Tower
Chicago, Illinois 60606-6357
(312) 474-6300
Attorneys for Applicants